Fig. 1

(Equation 1)
$$y_0 = c_0 + c_1 x_1 + c_2 x_2 + \ldots c_n x_n$$

(Equation 2)
$$P = \frac{\exp(y)}{1 + \exp(y)}$$

(Equation 3)
$$\lambda(t) = \frac{f(t)}{1 - F(t)} = \frac{-S'(t)}{S(t)}$$

(Equation 4)
$$S(t) = \exp\left(- \int_0^t \lambda(u) du \right)$$

(Equation 5)
$$\lambda(t) = \int_x \lambda(t \mid x) p(x) dx$$

(Equation 6)
$$\lambda(t, x) = \lambda_0(t) \exp\left(\sum \beta_i x_i \right)$$

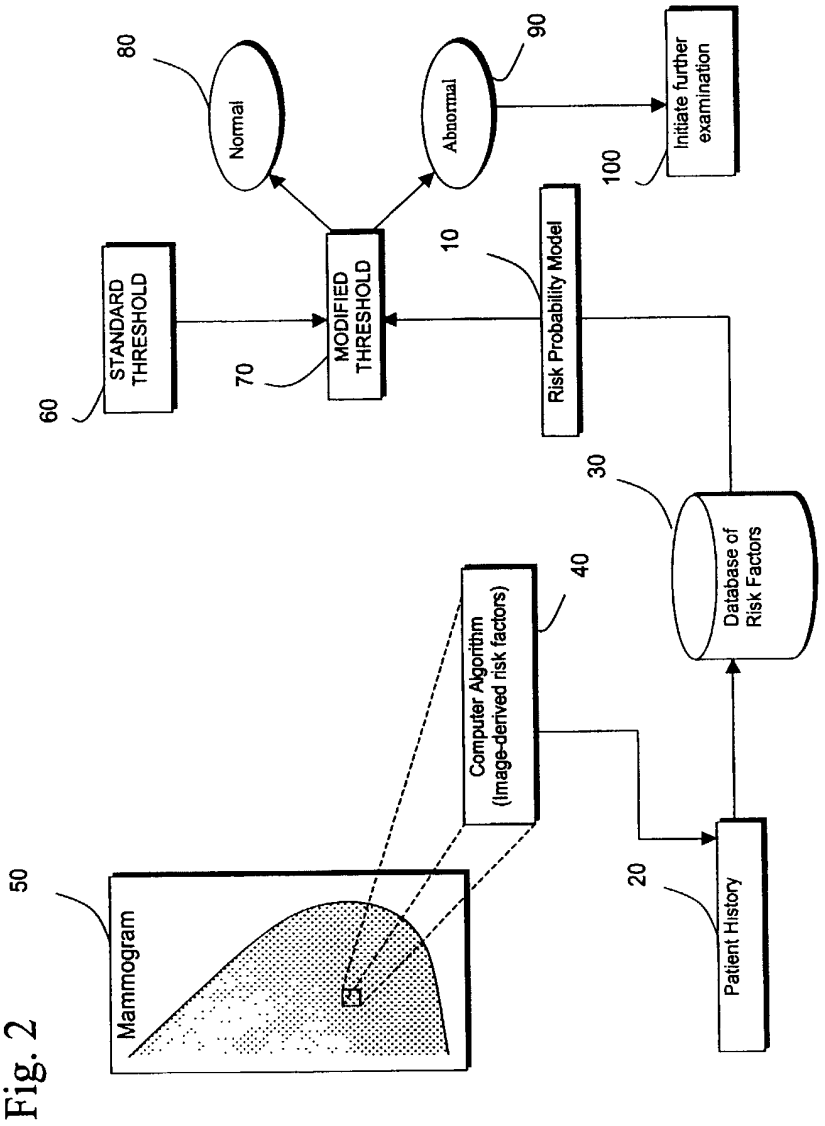

Mammogram
50
Computer Algorithm (Image-derived risk factors)
40
Patient History
20
Database of Risk Factors
30
Risk Probability Model
10
STANDARD THRESHOLD
60
MODIFIED THRESHOLD
70
Normal
80
Abnormal
90
Initiate further examination
100

Fig. 2

Fig. 3

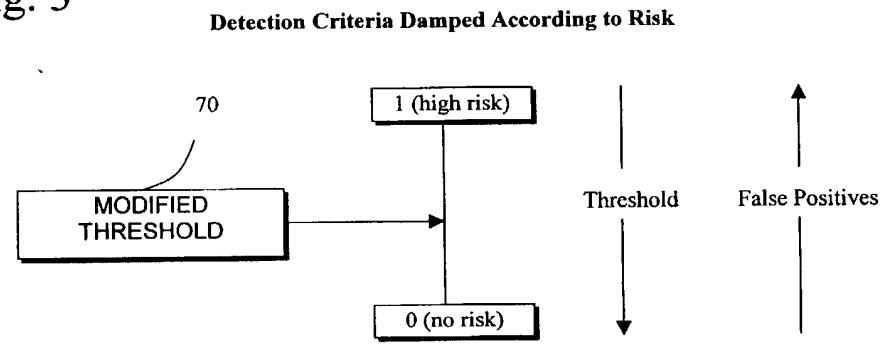
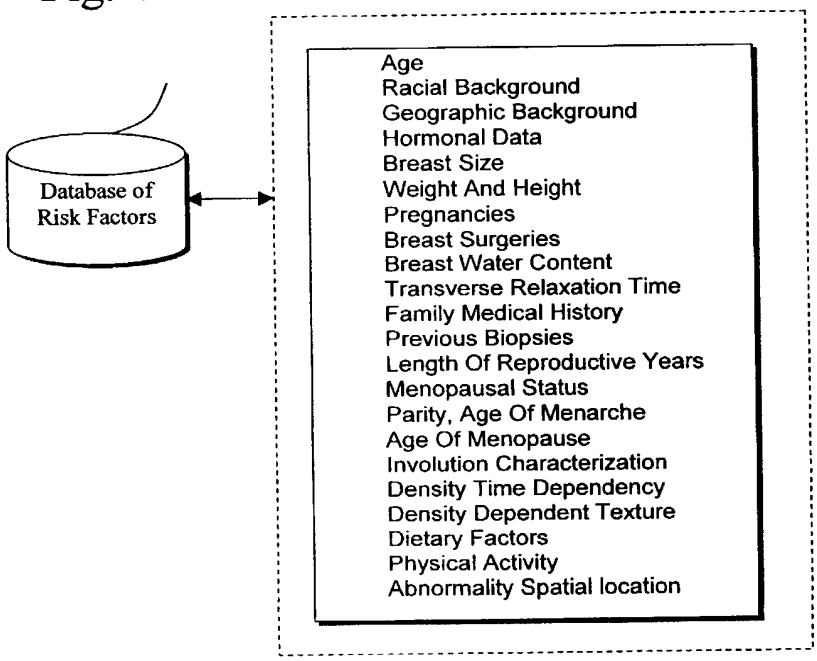

Detection Criteria Damped According to Risk
70
1 (high risk)
MODIFIED THRESHOLD
0 (no risk)
Threshold
False Positives

Fig. 4


Database of Risk Factors
Age
Racial Background
Geographic Background
Hormonal Data
Breast Size
Weight And Height
Pregnancies
Breast Surgeries
Breast Water Content
Transverse Relaxation Time
Family Medical History
Previous Biopsies
Length Of Reproductive Years
Menopausal Status
Parity, Age Of Menarche
Age Of Menopause
Involution Characterization
Density Time Dependency
Density Dependent Texture
Dietary Factors
Physical Activity
Abnormality Spatial location